

CLAIMS

1. A coating composition characterized by comprising:
an organic solvent and, contained in said organic solvent,
1) a polyalkylsilazane and
2) at least one organic resin component selected from
the group consisting of homopolymers and copolymers of acrylic
esters and methacrylic esters,

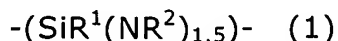
group -COOH and/or group -OH being contained in at least a part of side groups contained in at least one type of the organic resin component.

2. The coating composition according to claim 1, characterized in that said organic resin component has a number average molecular weight of 1,000 to 800,000.

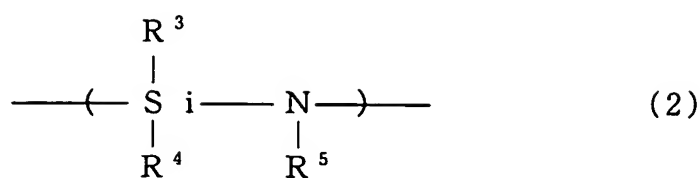
3. The coating composition according to claim 1 or 2, characterized in that said organic resin component is contained in an amount of 5 to 150% by mass based on said polyalkylsilazane.

4. The coating composition according to any one of claims 1 to 3, characterized in that said group -COOH and/or group -OH are contained in an amount of 0.01 to 50% by mole based on the total number of monomers of said organic resin component.

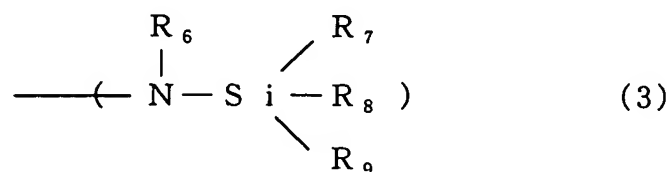
5. The coating composition according to any one of claims 1 to 4, characterized in that said polyalkylsilazane comprises repeating units represented by formula (1) and at least one type of units represented by formula (2) or formula (3) and has a number average molecular weight of 100 to 50,000:



wherein R^1 and R^2 each independently represent a hydrogen atom or an alkyl group having 1 to 3 carbon atoms, excluding the case where R^1 and R^2 simultaneously represent a hydrogen atom;



wherein R^3 , R^4 and R^5 each independently represent a hydrogen atom or an alkyl group having 1 to 3 carbon atoms, excluding the case where R^3 and R^4 simultaneously represent a hydrogen atom;



wherein R^6 to R^9 each independently represent a hydrogen atom or an alkyl group having 1 to 3 carbon atoms, excluding the case where all of R^6 , R^7 , and R^8 represent a hydrogen atom.

6. The coating composition according to claim 5, characterized in that, in formula (1), R^1 represents a methyl group and R^2 represents a hydrogen atom; in formula (2), R^3 and R^4 represent a hydrogen atom or a methyl group and R^5 represents a hydrogen atom; and, in formula (3), R^7 , R^8 and R^9 represent a methyl group and R^6 represents a hydrogen atom.

7. The coating composition according to claim 5 or 6, characterized in that said polyalkylsilazane comprises not less than 50%, based on the total number of units represented by formulae (1), (2) and (3), of repeating units represented by formula (1).

8. The coating composition according to claim 7, characterized in that said polyalkylsilazane comprises not less than 80%, based on the total number of units represented by formulae (1), (2) and (3), of repeating units represented by formula (1).

9. A porous siliceous film characterized by being produced by firing a film of a coating composition according to any one of claims 1 to 8, said porous siliceous film having a specific permittivity of less than 2.5.

10. A process for producing a porous siliceous film characterized by comprising coating a coating composition onto a substrate according to any one of claims 1 to 8 to form a film which is prefired in a water vapor-containing atmosphere at a temperature of 50 to 300°C and is then fired in a dry atmosphere at a temperature of 300 to 500°C.

11. The process for producing a porous siliceous film according to claim 10, characterized in that the prefired film is allowed to stand in the atmosphere or is subjected to moisture absorption under a humidified atmosphere followed by firing.

12. A semiconductor device characterized by comprising a porous siliceous film according to claim 9 as an interlayer insulation film.